THE LEGISLATIVE ASSEMBLY OF
BRITISH COLUMBIA

PULP AND PAPER MILL EFFLUENT PERMIT MONITORING

SELECT STANDING COMMITTEE ON PUBLIC ACCOUNTS REPORT

2000

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November 8, 2000

To the Honourable,
The Legislative Assembly of the
Province of British Columbia
Victoria, British Columbia

Honourable Members:

I have the honour to present herewith the *Eleventh Report* of the Select Standing Committee on Public Accounts for the Fourth Session of the Thirty-Sixth Parliament.

The *Eleventh Report* covers the work of the Committee on the matter of **Pulp and Paper Mill Effluent Permit Monitoring.**

Respectfully submitted on behalf of the Committee.

Mr. Rick Thorpe, MLA
Chair

Mr. Dan Miller, MLA
Deputy Chair

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INTRODUCTION

A typical pulp and paper mill discharges from 25,000 to over 100,000 litres of wastewater for each air-dried tonne of pulp produced. While the wastewater is discharged into the environment only after it has received on-site treatment, it still contains contaminant substances and residual organic solids. Therefore, all mills discharging liquid waste into British Columbia's rivers and coastal waters are required, pursuant to the *Waste Management Act*, R.S.B.C. 1996, c. 482, to obtain site-specific effluent discharge permits from the Ministry of Environment, Lands and Parks ("the ministry").

Currently, there are 26 pulp and paper mills in British Columbia. Of these, 22 discharge liquid waste into the rivers and coastal waters of the province, and thus require effluent discharge permits. The committee does note that due to efforts made by the industry and the ministry, and technological advances, over the past decade, pulp and paper mills in the province have improved effluent quality significantly.

Pulp and paper mill effluent permits are issued based on studies of mill sizes, processes, and the sensitivities of the local environment. The permits specify the type and amount of allowable discharge, and include extensive monitoring and reporting requirements.

The ministry's Pollution Prevention program issues pulp and paper mill effluent permits, and administers them jointly with the Environment and Resource Management department. The ministry's regional waste managers determine the types and concentrations of discharges regulated by the permits, based upon pollution control objectives for the forest industry, and site-specific information relating to the permit-holder's operation. Public input is sought when permits are amended, and all decisions of regional waste managers may be appealed to the Environmental Appeal Board.

In addition, the ministry's Laboratory and Systems Management section monitors a quality assurance program for laboratories analyzing effluent for the purposes of providing test results to mills or the ministry.

THE WORK OF THE AUDITOR GENERAL

During the twelve months prior to June 30, 1998, the Auditor General examined pulp and paper mill effluent permit monitoring in British Columbia. The audit examined how the ministry has monitored 13 of the 22 existing permits regulating liquid effluent discharges into the water. The audit did not include a review of permit monitoring relating to air emissions or discharges onto land. Environmental management experts from Royal Roads University were retained to provide assistance during the course of the audit.

The Auditor General concluded that the ministry was adequately monitoring pulp and paper mill effluent permits to ensure timely and complete submission of required information from mills. As well, the ministry was doing a good job of ensuring permit limits had not been exceeded, and corrective actions were taken when limits were exceeded. However, the audit determined that the ministry was not doing enough to ensure that the data being provided to it by pulp and paper mills was accurate and reliable. The Auditor General made eighteen recommendations to the ministry for improving its monitoring processes.

THE COMMITTEE'S REVIEW

The committee met in March 2000 to discuss the conclusions of the audit. At that time, the committee received testimony from representatives of the Auditor General's office. The committee also heard from ministry representatives. In particular, the assistant deputy minister responsible for regional operations, the manager of the pollution prevention section, a manager in the resource inventory branch, and a regional pollution prevention manager attended before the committee to discuss actions that have been taken to respond to the Auditor General's conclusions. During its deliberations, the committee was advised that compliance and enforcement is a core business in the ministry, and in fact additional pollution prevention officers were recently hired in each region to enhance the ministry's ability to monitor and enforce compliance with permits.

The committee heard that in order to monitor pulp and paper mill effluent permits, the ministry conducts the following activities:

- Reviews information submitted by mills for completeness and timeliness
- Reviews information to determine if effluent readings are within permit limits
- Conducts mill inspections, which are generally unannounced unless prior notice is needed so that required individuals will be present when ministry staff arrive
- Ensures quality of laboratories
- Takes corrective action where effluent discharges exceed permitted quality and quantity

The committee also discussed the respective roles of the British Columbia and federal governments in regulating the discharge of pulp and paper mill liquid effluent.

The committee was informed that the ministry supports the recommendations made by the Auditor General, and has taken steps to communicate the results of the audit to pulp and paper mill representatives, through the Council of Forest Industries. Ministry representatives also advised that they have discussed the audit recommendations with the British Columbia Laboratory Quality Assurance Advisory Committee.

REVIEWING INFORMATION FOR COMPLETENESS AND TIMELINESS

The Auditor General recommends that:

- *The ministry reviews of pulp mill effluent permit data be documented to indicate the dates and extent of the reviews*
- *The ministry complete the development and implementation of its EMS system as soon as practicable*
- *That pulp mill permits be amended to remove requirements for the testing the submission of data for mill processes that are no longer in use*

The committee was advised that liquid effluent discharge permits require their holders to monitor liquid effluent by measuring key parameters, which are a combination of chemical content and traits that have a potential negative impact on their receiving environment. Common parameters that are required to be monitored under the permits include pH, temperature, dissolved oxygen, TSS ("total suspended solids") and BOD (biochemical oxygen demand). Although not produced by all pulp and paper mills, AOX is another parameter which may be monitored. AOX means "adsorbable organic halogens", and is a measure of halogenated organic compounds including chlorine-containing toxicants such as dioxins and furans. Levels of AOX are regulated pursuant to the *Pulp and Paper Mill Liquid Effluents Control Regulation,* introduced in 1990.

Mills monitor parameters using three processes:

- Mill staff collect effluent samples, which are then analyzed or tested by external laboratories contracted by the mill
- Mill staff collect effluent samples, which are analyzed or tested by mill laboratories
- Mill staff take effluent readings by instrument

When the committee met to deliberate on this topic, information concerning the mills was held by the ministry in two separate computer systems. Data gathered by mills was reported to the ministry, which entered the data into two computer systems. The "EMS" system stored laboratory test results submitted by permit-holders, which could be submitted electronically, while the "WASTE" system was used to administer and control permits by storing data on types of pollutants, permitted discharge limits, testing and reporting requirements. At the time of the Auditor General's review, there were intentions to integrate the two systems to improve the ministry's efficiency in comparing data to permit limits. However, the integrated system was not expected to be available for practical on-line use for the foreseeable future, because of system development delays and resource constraints. When the committee met, it heard that as of 1999, data reports could be extracted from the EMS system. The committee also learned

that an interim reporting process through a data warehouse was completed in March 2000, allowing the ministry to produce combined EMS/WASTE system reports as of April 2000. Discussions are still underway to develop an integrated Internet-based data system.

The audit determined that while the ministry was doing a good job of ensuring that mills submitted required information on time, and reviewing the information for completeness, improvements were needed in the documentation of such reviews. The Auditor General also found some instances where permits required the reporting of data related to old processes no longer in existence.

Representatives of the ministry advised that since the audit, the ministry has implemented a procedure to document its reviews of pulp mill effluent permit data, and to ensure that documentation practices are consistent across all regions. The ministry is also removing redundant requirements as permits are amended.

REVIEWING DATA TO DETERMINE COMPLIANCE WITH PERMIT LIMITS

The Auditor General recommends that:

- *ministry comparisons of pulp mill data to permit limits be documented to indicate the date and extent of the reviews*

Ministry staff check data to compare actual effluent levels to permit limits. As well, the committee heard that the ministry has an informal arrangement with mills, whereby there is immediate notification if permit limits are exceeded. The audit determined that where the ministry has received information that permit limits have been exceeded, in all instances ministry staff have followed up. However, the ministry has not been adequately documenting its comparison of pulp and paper mill effluent levels and permit limits.

Committee members heard that since the audit, the ministry has implemented a procedure to document its comparison of pulp mill data to permit limits, and to ensure that documentation practices are consistent across all regions.

MILL INSPECTIONS AND DATA QUALITY ASSURANCE

The Auditor General recommends that:

- *the ministry provide its pulp mill monitoring staff with clear guidance as to its minimum inspection requirements, along with a plan outlining how its various monitoring activities work together to provide assurance that mill monitoring data is accurate and reliable*

The Auditor General's report notes that the mill inspection and quality assurance work of the ministry is exceptionally important in ensuring that the quality of the data received from mills is accurate and can be relied upon. Inaccurate data may result from improperly calibrated measuring equipment, laboratory testing procedures that have not been conducted correctly, errors in sampling procedures, or incorrect transcription of data from supporting records.

However, representatives of the Auditor General's office submitted to the committee that, in the audit period, they found inconsistency in the conduct of ministry inspection activities. They also noted that the ministry provided little guidance to its regional staff regarding expectations pertaining to inspection activities and their frequency.

The committee also learned that the International Organization for Standardization ("ISO"), a worldwide federation of national standards bodies from 130 countries, has published standards both for quality management ("ISO 9000" standards) and for environmental management ("ISO 14000" standards). These standards are composed of a series of documents, one of which ("ISO 14001") requires the conduct of environmental management system audits. At the time of the Auditor General's review, four of British Columbia's pulp mills had achieved ISO 14001 certification, and a number of others had developed environmental management systems based generally on the ISO group of standards.

Additionally, ISO recently published the new standard "ISO/IEC 17025", to assure the validity of test data from analytical testing laboratories. Presently, CAEAL is phasing-in this standard for Canada.

Although he did not make a specific recommendation on this topic, the Auditor General has suggested that ISO certification provides the ministry with an opportunity to obtain information which could provide assurance that mill effluent monitoring data is accurate and reliable. This information could also assist the ministry in formulating a risk assessment-based monitoring scheme for mills. A risk assessment-based monitoring scheme would identify areas in which the risk of missing a problem with data submitted by mills has greater

consequences to the environment , such that a higher degree of assurance is required. This would allow the ministry to focus its monitoring activities where they are most needed.

Mill Inspections

The Auditor General recommends that:

- *the ministry clearly document the scope of work it performs during each pulp mill inspection*
- *the ministry revise its pulp mill Permit Inspection form or file documentation requirements so that it requires more extensive and specific conclusions about the ministry inspection work at the pulp mills.*

In addition to reviewing information submitted by mills, the ministry also conducts field inspections, tests and observations to ensure that the data it is receiving is accurate and reliable. These inspections may include checking mill records for quality control over calibration of equipment, and observing equipment readings and comparing them to previously-reported readings.

Representatives of the Auditor General's office told the committee that the following concerns regarding the ministry's mill inspection work were identified during the course of the audit:

- visual inspection work needed to be documented more thoroughly
- more focused, well documented quality assurance reviews were not occurring as often as they should be
- a pre-printed ministry "Permit Inspection" form used to record mill inspections was too general to provide guidance to staff regarding the conduct of such inspections, and how much detail to document

Ministry representatives responded to the Auditor General's conclusions by advising the committee that since the audit, key staff responsible for pulp mill inspections and monitoring in all regions have been contacted to clarify inspection procedures, and this is ongoing. However, in terms of documentation of inspection processes, it was noted that the ministry monitors and inspects approximately 4,000 permits, and must balance the resources it dedicates to pulp and paper mill effluent permit inspection with the resources required to monitor other types of permits. The committee heard that documentation processes are being improved as resources become available, and that the ministry has become more rigorous in requiring sign-off as documents are reviewed by staff.

Also since the audit, the ministry has developed updated inspection forms which provide a more formalized and detailed outline for inspection to guide staff. Committee members have also learned that the ministry has offered formal staff training in this area. For example, in the spring and summer of 2000, two

courses were offered relating to the environmental monitoring of pulp and paper mills. These measures will be reviewed by the Auditor General when he conducts a follow-up of his audit. That follow-up review is expected to be complete in mid-November of 2000.

Mill Effluent Laboratory Analysis and Quality Assurance

All thirteen mills studied during the audit have their own laboratories for analysis of effluent parameters. Mills may also contract with outside laboratories to analyze certain parameters. The *Environmental Data Quality Assurance Regulation*, passed in August 1990 pursuant to the *Environment Management Act*, R.S.B.C. 1996, c. 118, governs quality assurance for environmental data, including data from laboratory analysis of pulp and paper mill effluent.

The committee learned that at the time of the audit the ministry used three methods for obtaining assurance about the accuracy of laboratory analyses of pulp mill effluent. Those methods were laboratory registration (with associated laboratory proficiency testing), methodology guidance, and split sampling. In addition, ministry staff in some regions were inspecting mills' sampling procedures.

The committee learned that in addition to its assessment of mill effluent samples, the ministry also conducts assessments of the entire receiving environment. These studies involve an assessment of downstream water samples, sediment, and benthic life forms (organisms that live in, on, or near the bottom, including plants, invertebrates, and fish). This is also done as part of Environment Canada's EMS (environmental management system) monitoring program.

Laboratory Registration

The Auditor General recommends that:

- *the ministry ensure that pulp and paper mill laboratories submitting sample results be tested and registered for all designated effluent parameters for which they are performing laboratory analyses*

To administer the requirements of the *Environmental Data Quality Assurance Regulation*, the ministry had established a data quality assurance program, maintaining a register of mill laboratories and those contracted by mills, and requiring registrants to conduct tests determining their ability to perform accurate analyses for 25 designated parameters.

However, the audit determined that the ministry was not doing enough to ensure that mill laboratories performing effluent sample analyses were tested and registered for all designated parameters they were testing and reporting results on.

The committee notes that on March 8, 2000 the *Environmental Data Quality Assurance Regulation* was amended to replace the ministry's laboratory registration program with a certification of proficiency program administered by the Canadian Association for Environmental Analytical Laboratories ("CAEAL"), a non-profit, independent agency. Committee members heard that the replacement has been endorsed by the British Columbia Laboratory Quality Assurance Advisory Committee, and the International Association of Environmental Testing Laboratories. A list of all registered laboratories is accessible to the public on CAEAL's web site at www.caeal.ca/regions.html.

Methods Specification

The ministry has also provided guidance to mills and contracted laboratories on appropriate test methods to follow in sampling, sample preservation, sample analysis, data quality control and assurance. Guidance is contained in two manuals issued by the ministry. The Auditor General found the manuals to be effective in communicating ministry expectations to laboratories.

While laboratories are generally required to follow methods contained in the ministry's manuals, the ministry's regional managers do have the discretion to allow use of alternative methodologies if it is demonstrated that data quality objectives will still be met. When concerns arise about the impact of different methodologies on results, investigations are conducted and the ministry may require specific testing methodologies be followed.

Ministry representatives also emphasized that proficiency testing done by CAEAL ensures the quality of results, no matter what testing methodology is used.

Independent and Split Sampling

The Auditor General recommends that:

- *the ministry require all of its regions to include split sampling of effluent parameters required to be reported by pulp mill permit holders as part of their inspection programs*
- *the ministry periodically collect samples of mill effluent and have them independently analyzed for all parameters that must be reported pursuant to the mill permits*
- *ministry inspectors document their comparison of the results of split sampling with data submitted by the mills throughout the year and draw conclusions about the accuracy of the mill data from this work*

Split sampling involves both a mill and the ministry taking samples of mill effluent, independently analyzing parameters, and comparing the results. Committee members heard that split sampling is considered by some to be the best way to obtain assurances about the reliability of mills' laboratory

analyses. In addition, the ministry may conduct its own analysis of effluent parameters. Ministry samples are usually analyzed by an Environment Canada laboratory located at the Pacific Environmental Science Centre in North Vancouver.

During the audit period, only two regions were found to be using the split sample technique. However, the review did determine that the results of mill and ministry analyses were comparable, and were within permit limits. Representatives of the Auditor General's office also advised the committee that comparisons of split sample results to data submitted by mills during the year have not been adequately documented.

Committee members also learned that although ministry staff in 5 regions were doing some independent sample testing, there was inconsistency in the effluent parameters tested.

Ministry representatives submitted that decreased resources and improved effluent quality since the early 1990's have decreased use of the split sampling procedure. The committee has also learned that there is some disagreement about whether split sampling is the best method for obtaining data quality assurances. However, there is support for the Auditor General's recommendations, and the ministry has been looking at options including multiple split sampling (whereby a very large effluent sample is taken and split into numerous samples, all analyzed by different laboratories) and cost recovery. Some consideration has also been given to analysis of split samples by industry alone, although it was emphasized to the committee that the ministry's involvement serves to increase public confidence in the results.

At the time of the committee's deliberations the ministry planned to hold a workshop at the end of March 2000 to develop and finalize a protocol dealing with split and independent sampling. Committee members have since learned that as a result of that workshop, a subcommittee was struck, and is expected to report by December 31, 2000.

Reference Sampling

The Auditor General recommends that:

- *the ministry continue its pursuit of methods for improving the effectiveness of its laboratory performance evaluation test program, and clearly establish consequences for laboratories that fail to meet ministry-required performance standards*
- *the ministry's regions coordinate with the Laboratory Quality Assurance Office to follow-up on tested laboratories in which the central review program has indicated problems*

As discussed above in this report, in the section relating to laboratory registration, the ministry has maintained a register of mill laboratories and those contracted by mills to analyze

effluent samples. Part of this involves a reference sample performance evaluation program jointly administered by the ministry and CAEAL. Under the program, mills were provided with reference samples made up of known components and parameters, to analyze and compare the mills' results to the known results. This tested the mills' ability to perform accurate analyses for 25 designated parameters.

The Auditor General's review indicated that all 13 audited mills participated in reference sampling, but that results demonstrated the need for some performance improvement. In particular, the audit team examined two reference sampling tests and found that, for the two tests, 38% and 50% of mills scored less than 70 in one parameter. However, ministry representatives noted that the examination also found that only 16% and 8% of mill laboratories scored less than 70 in *more* than one parameter.

The committee also heard that the audit team found no specified consequences for test failure, and that only in isolated instances did regional ministry staff follow up with mills about poor results.

Committee members learned that the new certification of proficiency program that has replaced the ministry's laboratory registration program since the audit includes a procedure for de-registering laboratories with persistent poor performance in testing for specific parameters. Currently, failure of three consecutive tests will result in de-registration. The CAEAL program also covers a wider list of parameters than the ministry's former program.

Furthermore, at the time of the committee's deliberations the ministry was in the process of making information available on its Intranet relating to laboratory-specific quality assurance problems identified under both the old registration program, and the new CAEAL program. The ministry was also implementing a more aggressive follow-up process, whereby staff will contact laboratories by telephone and/or letter to draw their attention to problematic data.

Mill Sampling Procedures

The Auditor General recommends that:

- ***the ministry's mill inspections include complete and effective reviews of mill sampling procedures, and provide for mill inspectors to have training in sample collection techniques***

According to the Auditor General, the ministry's inspection of sampling procedures (involving verification that samples have been collected, handled and stored according to ministry guidelines) has been inconsistent, due to limited resources and the need for additional staff training on laboratory procedures.

The committee discussed safeguards in place to provide assurance to the public that samples taken by mill laboratories or their contractors are not taken only at times when there is a high expectation that permit limits will be complied with, and are not tampered with to produce satisfactory results. Ministry representatives assured committee members that because liquid effluent is continuously discharged from large pulp and paper mills by the millions of gallons each day, it would be difficult to determine when and from where in a stream a favourable sample may be taken. They also noted that samples taken by mill laboratories and their contractors are composites, taken over a 24-hour period, and compared with data from samples taken by ministry staff. Finally, ministry representatives submitted that the possibility of de-registration under the CAEAL program provides laboratories with an incentive for good performance.

Inspection of Mill Laboratories

The Auditor General recommends that:

- *the ministry provide pulp mill inspectors with training in quality assurance techniques and ensure that routine mill laboratory inspections are part of their ongoing inspection program*

The Auditor General's report notes that periodic audits of mill laboratories would support the ministry in obtaining assurances about the reliability of data provided to it. However, the audit team found that the ministry did not require routine inspection of laboratories, due to a shortage of inspection resources and competing program priorities.

At the time of the committee's deliberations, the ministry was examining options regarding its inspection resources. These options were the accreditation of independent auditors (most likely from CAEAL) to supplement the monitoring work done by ministry inspectors, and the amendment of permits to require mills to employ laboratories with full CAEAL accreditation. Full CAEAL accreditation is more rigorous than the certification of proficiency program administered by that organization, as it includes regular and thorough on-site audits of laboratories by independent auditors. The committee also learned that, as of mid-October 2000, 14 laboratories in British Columbia had voluntarily sought and received CAEAL certification.

Reviewing Mill Records

The Auditor General recommends that:

- *the ministry trace pulp mill data reports back to supporting documentation during mill inspections*

The Auditor General's report states that an effective method for verification of data submitted by mills is to compare the data with mill records, such as equipment reading records and mill

laboratory analysis documents. However, the audit determined that during mill inspections, ministry inspectors were not routinely tracing mill data reports received by the ministry back to supporting documentation.

In this regard, committee members were informed that ministry inspectors will now be reviewing supporting documentation during annual pulp mill audits. The ministry has also been considering the possibility of conducting unannounced, intensive audits of a number of mills, which would include an examination of liquid, solid, air and special waste emissions.

CORRECTIVE ACTION FOR VIOLATION OF PERMIT LIMITS

The Office of the Auditor General recommends that:

- *the ministry consider head office reviews of instances where regional staff use professional judgement and other circumstances to exclude offenders from the ministry's public Environmental Protection NonCompliance Report, and clarify the term "authorization reporting period" in its policy*

Committee members received information regarding fines assessed against pulp and paper mills during the period April 1, 1998 to March 31, 2000. During that period, fiscal penalties totalling $104,700 were assessed against 7 companies. Most of those fines were assessed pursuant to the *Waste Management Act*, and in particular:

- Section 3(2): introducing industrial or business waste into the environment
- Section 54(6): failure to comply with the requirements of a permit or approval
- Section 54(7): failure to comply with the terms and conditions of a permit

There was also one fine assessed under section 36(3) of the federal *Fisheries Act*, R.S.C. 1985, c. F-14, for depositing a deleterious substance into water frequented by fish.

The committee learned that when the terms of pulp and paper mill effluent permits have been violated, the ministry has followed up to ensure that the incident is properly resolved and actions are being taken to prevent a recurrence of the problem. The ministry may also take informal actions including issuance of notices of noncompliance or warning letters. Although carrying no penalty, if ignored notices and warning letters may lead to more serious actions being taken by the ministry. The ministry may also publish a violator's name in its "Environmental Protection Noncompliance Report", which has been published on a semi-annual basis since 1990.

Ministry procedure suggests that an operation be considered for inclusion in the noncompliance report if it submits eight or more samples during an "authorization reporting period", 15% of which exceed effluent parameter requirements. However, committee members were advised that the audit team found some regional inconsistency in interpretation of the ministry's policy.

Ministry representatives submitted to the committee that staff are continuing to tighten up criteria to ensure inclusion in the noncompliance report is based on an objective assessment. For example, they noted that staff consistently review the parameters included in noncompliance reports, to ensure that

citations are based on objective information. Committee members were also made aware that before the noncompliance report is published, all permit-holders named in it are provided an opportunity to comment.

The committee was interested to hear about incentives the ministry provides for mills to reduce effluent, and the level of hazardous substances in it. Ministry representatives explained that waste discharge fees are imposed based upon the quantity and quality of effluent. As well, the committee was pleased to hear that the ministry assists with pollution prevention planning, and has conducted pilot projects in mills around the province. Pollution prevention planning is a multi-stakeholder process to encourage mills to take a more holistic approach to managing their systems (encompassing liquid effluent, air emissions, solid residue and hazardous or special waste storage). Mills doing a good job in cleaning up pollution may also receive awards of recognition. Finally, the committee learned that the Ministry of Finance and Corporate Relations has been considering tax measures as a way of shifting credit to mills performing well in environmental management.

REGULATORY OVERLAP

The Office of the Auditor General recommends that:

- *the ministry re-establish the "single window" arrangement with the federal government to assist in reducing overlap in pulp and paper mill liquid effluent regulation monitoring, inspection and reporting*

The committee learned that in 1992, the federal government also passed regulations relating to pulp and paper mill liquid effluent discharge. In 1994 the British Columbia and federal governments signed an agreement to establish a "single window" approach for the administration of federal and provincial regulatory requirements relating to such discharges. Pursuant to that agreement, the province bore responsibility for mill inspection, while the federal government participated in a selected number of joint mill inspections, and agreed to pay for provincial ministry services provided (up to $166,000 per year).

However, this agreement expired in 1996. The committee notes that as of October 2000, the two governments were in the process of re-negotiating a similar arrangement

CONCLUSION

Based on evidence received by the committee during its deliberations, it is clear that in most respects the ministry is doing a good job of monitoring pulp and paper mill effluent permits. However, there is no doubt that improvements still need to be made by the ministry in obtaining assurances that effluent monitoring data submitted by mill laboratories is accurate and reliable. Implementation of the CAEAL certification of proficiency program in British Columbia represents a step forward in this regard. However, representatives of the Auditor General's office have emphasized to the committee that there is still a need to develop a ministry-wide, organized approach to pulp and paper mill effluent permit monitoring in British Columbia which is communicated to all regions. The committee looks to the ministry to address the Auditor General's recommendations, while at the same time recognizing that the ministry must concentrate its efforts on permits and regulations which, if violated, involve a higher degree of risk to the environment.

The Auditor General plans to complete a follow-up review of the status of recommendations relating to pulp and paper mill effluent permit monitoring in mid-November of 2000, and the committee looks forward to receiving more information on progress made by the ministry at that time.

Committee Recommendations

Your committee recognizes the work done by the pulp and paper mill industry and the Ministry of Environment, Lands and Parks over the past decade in achieving pulp and paper mill effluent quality improvements.

Your committee recommends that the Ministry of Environment, Lands and Parks implement the 18 recommendations of the Auditor General contained in his 9th report for 1999/2000, relating to pulp and paper mill effluent permit monitoring.

APPENDICES

I - Written Submissions

- Office of the Auditor General of British Columbia, *1999/2000 Report 9, Pulp and Paper Mill Effluent Permit Monitoring (Presentation to the Select Standing Committee on Public Accounts)*, March 8, 2000
- Ministry of Environment, Lands and Parks, *Presentation to the Select Standing Committee on Public Accounts*, March 8, 2000
- Ministry of Environment, Lands and Parks, *Fines Assessed Against Pulp and Paper Mills in the Period April 1, 1998 to March 31, 2000* (information provided in response to a request by the Select Standing Committee on Public Accounts, March 2000)

II - Research Documents

- International Organization for Standardization, *ISO 14000 - Meet the Whole Family!* (1998), http://www.iso.ch
- International Organization for Standardization, *ISO 14000 and Environment Management Systems for Busy Managers*, undated, http://www.iso.ch/9000e/14kbusy.htm
- Jay Ritchlin and Peter Ronald, "Alas, pulp pollution persists", *Times-Colonist*, October 17, 2000, page A11
- Bright, Doug A. and Dodd, Matthew, *Scientific Overview of AOX Discharge Limits and Current Regulatory Approaches*, Victoria: Royal Roads University, 1999